

NuMI Beam Permit System

An Operational Tour

Bob Ducar 9-Feb-2005

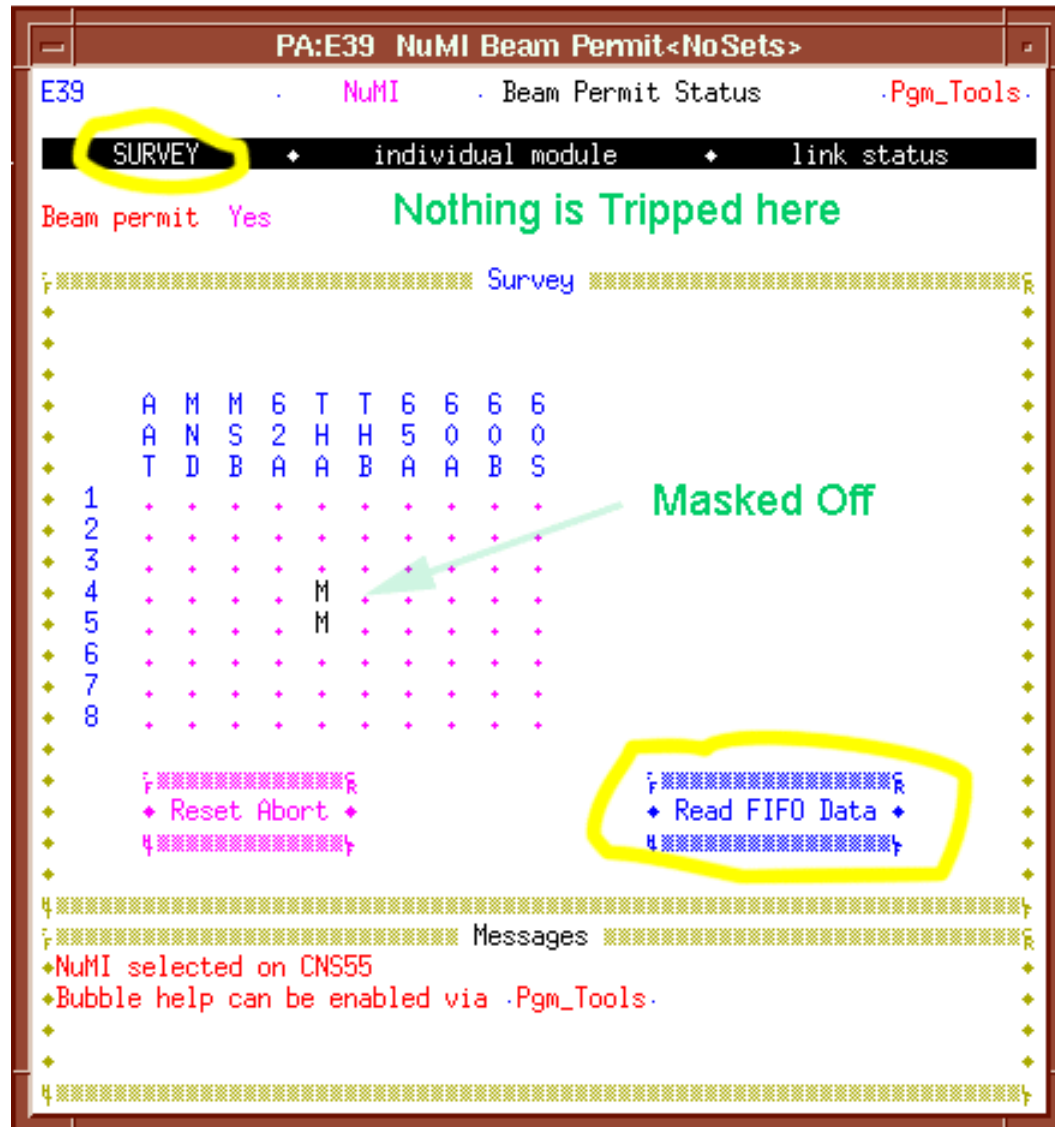
(Graphics added 5-18-05)

NuMI Beam Permit System (C200 Modules)

- **Beam Permit Falls** (Red LED by NuMI Beam Switch)
- **Go to Page E39 and Select “Survey”**
- **Observe Location of Trip**
- **Interrupt (Intr) on “Read FIFO Data”**
- **Intr on Column with Red Stars or Select “Individual Module” to See Which Input Has Tripped.**
- **Investigate Trip Condition**

E39 Survey View

Colors
Inverted



E39 Individual Module View

Colors Inverted

Beam permit No

Individual Module

—<THB>+

Input	Time	Seq	Type	Description	I	Src	Mask
1	0		0	C204/PCI Permit from MADC 88	Off	Off	
2	15.292	1	0	Target & Baffle RAW Skid OK	Off	Off	
3	0		0	Horn 1 RAW Skid OK	Off	Off	
4	0		0	Horn 2 RAW Skid OK	Off	Off	
5	0		0	Decay Pipe US RAW Skid OK	Off	Off	
6	0		0	Total Loss Monitor Gas Flow	Off	Off	
7	0		0	Target & Baffle RAW Flow OK	Off	Off	
8	0		0	Spare	On	Off	
9	15.294	2		Upstream permit			

This "On" means that the current source is internal

The time is time after the \$A23 event, in seconds, when the trip occurred. The column "Seq" is the sequence in which the trips occurred. These values are not accurate if "Reset FIFO Data" wasn't done.

NuMI Beam Permit System (C204 Modules)

IF the Trip is from C204/PCI

- **Go to Page E40 and Select “System” to Determine the Location of the Tripped C204/PCI**
- **Intr on Either the Column with Red Stars or Select “Module”**
- **Intr on “Tripped Channels Summary” to See Which Channels Tripped**
- **Investigate**

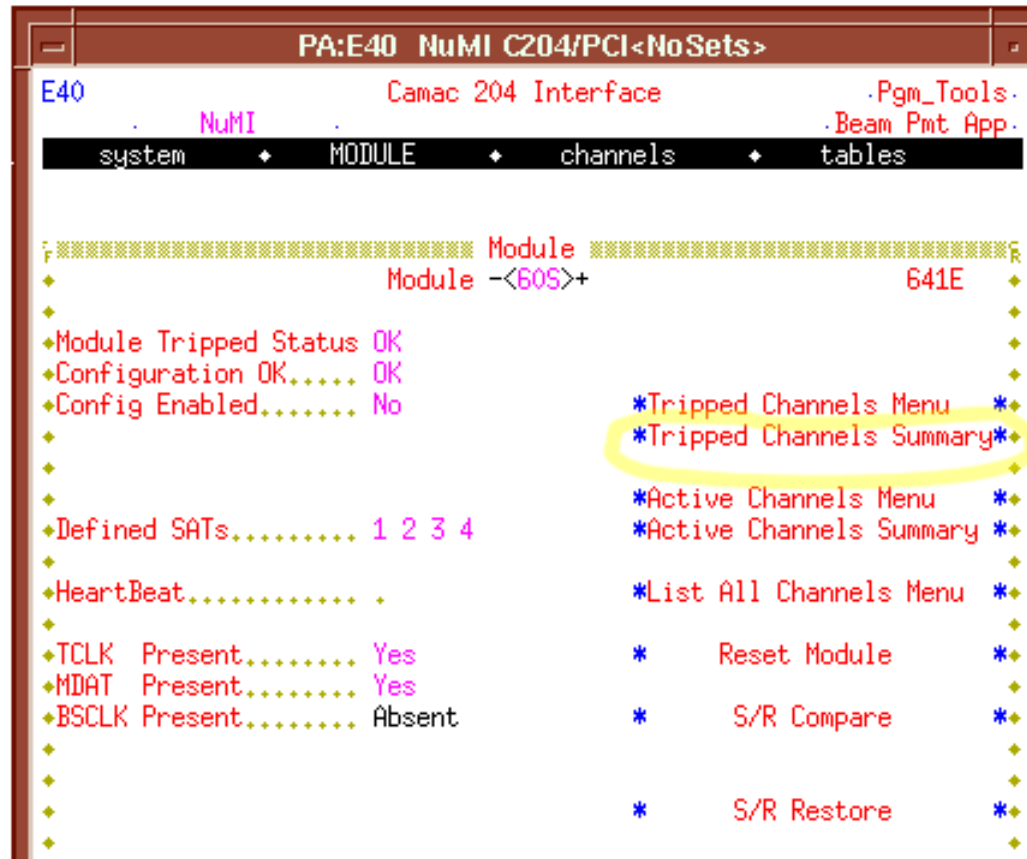
E40 System View

PA:E40 NuMI C204/PCI<NoSets>							
E40	Camac 204 Interface					.Pgm_Tools.	
	NuMI					.Beam Pmt App.	
SYSTEM	module	channels				tables	
System							
NuMI							
Module	6	6	6	6	6	T	T
	0	0	0	2	5	H	H
	S	A	B	A	A	A	B
Module Tripped	+	+	+	+	+	+	+
Configuration OK	+	+	+	+	+	+	+
Config Enabled	+	+	+	+	+	+	+
* Excel System Report *							
Messages							

Colors

Inverted

E40 Module View



Colors

Inverted

Examples of tripped channels

GxPC 1: C204 Tripped Channels Summary						
60B 60B 60B						
01 tripped channels found						
Read Completed OK 07-MAY-05 15:50:03						
Channel Number	Channel Name	Trip Value	low analog limit	high analog limit	Units	Raw Ch Config
6	I:LAM61	1962.1	1962.51	1991.81	Amps	A0C0

GxPB 1: C204 Tripped Channels Summary						
60S 60S 60S						
01 tripped channels found						
Read Completed OK 17-MAY-05 22:53:22						
Channel Number	Channel Name	Trip Value	low analog limit	high analog limit	Units	Raw Ch Config
6	I:BNKG	2.3999	-10.0000	2.00012	Volt	C040

GxPA 1: C204 Tripped Channels Summary						
62A 62A 62A						
01 tripped channels found						
Read Completed OK 16-MAY-05 20:10:59						
Channel Number	Channel Name	Trip Value	low analog limit	high analog limit	Units	Raw Ch Config
33	E:V108	4339.3	4340.06	4472.20	Amps	A0C0

Changing Analog Limits

- **Select “Channels” and Select Proper Location and Channel (Reference Golden File and/or Tripped Channel Summary)**
- **Intr at *Analog Limits* to Enable Change of Either of the Entered Min or Max Analog Values, But Not Both**
- **Overtyping in New Value and Intr**
- **Intr on the Pop-Up to “Enable Configuration” and Send the New Value**

E40 Individual Channel View

Colors
Inverted

PA:E40 NuMI C204/PCI<NoSets>

E40

NuMI

Camac 204 Interface

Pgm_Tools

Beam Pmt App

system	module	CHANNELS	tables
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Process Channels

Channel -<52>+ of Module -<THA>+ 9040

Target Helium Flow Rough

Module Tripped status OK

Configuration OK status OK

Configuration Enabled No

E: TGTHFR

Live Reading

.1056 L/m

Channel Active/Masked1 Active

Associated SAT 1

Analog Limits

Min = -6.00000

Max = .500061

Trip IFF this beamline has Permit0 No

Trip IFF source machine has Permt0 No

Trip IFF this beamline has Beam..0 No

Desired Digital State0 0

* Trip Summary *

Analog low limit applies0 No

Analog high limit applies1 Yes

Edit Ch Config

Analog high and low apply0 No

Analog low = high limit/low int.0 No

Analog high = high limit/high int0 No

Archive Ch Data if tripped.....0 No

Reset Module

Scale back intensity if tripped..0 No

Masking (or Unmasking) C204/PCI Channels

- **Intr at *Edit Ch Config* to Enable Change**
- **On “Channel Active/Masked” Line, Intr on Current State Between <...> and Select Desired State**
- **Intr at *Send Configure* to Enter New State**

NuMI Beam Permit System (C200 Modules)

Masking (or Unmasking) C200 Channels

- **On E39, Select “Individual Module”**
- **Intr in Right “Mask” Column for Desired Channel**
- **Intr on the Pop-Up to Make Change**
- **Note That Current Sources are Programmed OFF for Connected Channels**
- **Current Sources Must be ON for Spare Channels. Current Sources are OFF for Connected Channels.**

NuMI Beam Permit System (C200 Modules)

Resetting the NuMI BPS

- **On E39, Select “Survey”**
- **Intr in the “Reset Abort” Box**
(This Action Resets Both C200 and C204/PCI Hardware)
- **BPS Will Clear if Conditions Allow**
(Green LED by NuMI Beam Switch)
- **Be Aware That Some C204/PCI Conditions are Checked Only on the \$A5 NuMI Cycle**
(Be Patient for This to Happen)
- **Back to Text Slide 2 if BPS Does Not Reset Immediately or Upon Occurrence of the \$A5 Cycle** (Red LED by NuMI Beam Switch)

General Advice

- **Changes to the Beam Permit System Require Consent of the NuMI Commissioning Coordinator**
- **Document Changes in the NuMI E-Log**
- **C200 Inputs are Always Active**
- **C204/PCI Stops Checking When Tripped**
- **Alteration of State Algorithm Tables (SATs) or of Timing Channel Settings are Reserved to BPS System Experts**